

# CONSEIL DE L'ATLANTIQUE NORD NORTH ATLANTIC COUNCIL

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ORIGINAL: ENGLISH  
6th March 1997

NOTICE  
AC/141(NG/1)N/11

NATO NAVAL ARMAMENTS GROUP

NAVAL GROUP 1 ON ABOVE WATER WARFARE

AGARD REPORT 342 ON PRECISION TERMINAL GUIDANCE FOR MUNITIONS

Note by the Secretary

1. Please find attached the Executive Summary, Outline of the Study on Precision Terminal Guidance for Munitions and the list of members of the working group.
2. The Study may be helpful for the work of the Specialist Team on Naval Fire Support.

(Signed) E. DRANSFELD

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AGARD-AR-342

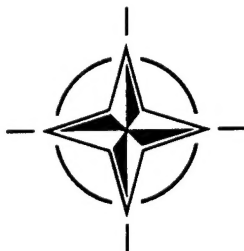
# AGARD

ADVISORY GROUP FOR AEROSPACE RESEARCH & DEVELOPMENT  
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AGARD ADVISORY REPORT 342

## Precision Terminal Guidance for Munitions (le Guidage terminal précis pour les munitions)

*This report has been prepared as a summary of the deliberations of Working Group 02 of the Mission Systems Panel of AGARD.*



NORTH ATLANTIC TREATY ORGANIZATION

Published February 1997

Distribution and Availability on Back Cover

# **Precision Terminal Guidance for Munitions**

## **(AGARD AR-342)**

### **Executive Summary**

Working Group 02 (originally Guidance and Control Panel working Group 13) was approved by the AGARD National Delegates Board in the Spring of 1991, shortly after the Gulf War with Iraq. The effectiveness of the guided munitions used in that conflict emphasised their importance in "conventional" warfare. Following this experience, the lessons learned from military interventions by NATO nations has often yielded less clear-cut results. In spite of these recent events, it seems clear that the future of precision guidance is assured, for reasons similar to those prevailing during the Gulf War, that is, their usefulness as a "force multiplier". This enables them to:

- maximise the effective fire power of launch platforms;
- minimise the number of missions required to carry out a given task;
- reduce collateral damage to non-combatants to a minimum.

The Working Group oriented its aims towards NATO military needs and the review of terminal guidance technology in relation to those needs, using the two following items as a starting point:

- the AGARD planning guidelines, which give a top-down view, derived from the NATO strategic concept;
- an analysis by GCP of the implications of the Gulf War for guidance and control.

The review of terminal guidance technologies was also aimed at identifying new capabilities not currently part of NATO's armoury. Projections into the future often produce speculative concepts that, in the light of deeper study, turn out to be unworkable, unaffordable or even misguided. But new ideas, however impractical at first sight, are the stimulus NATO needs to stay at the forefront of technology advances.

- 4 -

# Contents

	Page
<b>Executive Summary</b>	iii
<b>Synthèse</b>	iv
<b>Working Group Membership</b>	vii
<b>Acronyms and Abbreviations</b>	viii
<b>CHAPTER 1 INTRODUCTION</b>	1
1.1 Background	1
1.2 Content of the Report	2
<b>CHAPTER 2 TERMINAL GUIDANCE SYSTEMS</b>	3
2.1 Guidance Concepts	3
2.2 Seeker Functions	7
2.3 Target Characteristics	12
2.4 Seeker Programmes	13
<b>CHAPTER 3 MILITARY NEEDS</b>	17
3.1 NATO Strategic Needs	17
3.2 Operational Experience	19
3.3 Future PGM Needs	21
3.4 Summary of Needs	24
<b>CHAPTER 4 TECHNOLOGY TRENDS</b>	25
4.1 Sensors	25
4.2 Signal/Data Processing	29
4.3 Guidance Laws (Tracking & Homing Processes)	36
4.4 Seeker Stabilization	39
4.5 Inertial Sensors	43
4.6 Global Positioning System (GPS)	47
4.7 GPS/INS Integration	49
4.8 Communications/Command Links	53
4.9 Countermeasures & Counter-Countermeasures	54
4.10 Chapter Four Overview	57
<b>CHAPTER 5 USER CONCERNS</b>	61
5.1 Mission Planning	61
5.2 Identification of Friend or Foe (IFF)	65
5.3 Battle Damage Assessment (BDA)	66
5.4 Cost - Schedule	67
5.5 Environmental Issues	73
5.6 Chapter Five Overview	74
<b>CHAPTER 6 FUTURE CAPABILITIES</b>	75
6.1 Global Targeting and Force Projection	75
6.2 All-Weather Operation	75

6.3	Miniaturized Munitions	76
6.4	Rationalised Inventories and "On-Demand" Munitions	76
6.5	Integral IFF	78
6.6	Unmanned Aircraft	78
6.7	Novel Weapon Concepts	78
6.8	Chapter Six Overview	79
<b>CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS</b>		<b>81</b>
7.1	Potential to Meet NATO Needs	81
7.2	NATO Cooperation	82
<b>Appendix A — Basic Definitions</b>		<b>85</b>
<b>Appendix B — Terrain Referenced Navigation</b>		<b>89</b>
<b>Appendix C — Countermeasures</b>		<b>97</b>
<b>Appendix D — Relative GPS Techniques</b>		<b>103</b>

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REPORT DOCUMENTATION PAGE																			
1. Recipient's Reference	2. Originator's Reference AGARD-AR-342	3. Further Reference ISBN 92-836-1048-2	4. Security Classification of Document UNCLASSIFIED/ UNLIMITED																
5. Originator Advisory Group for Aerospace Research and Development North Atlantic Treaty Organization 7 rue Ancelle, 92200 Neuilly-sur-Seine, France																			
6. Title Precision Terminal Guidance for Munitions																			
7. Presented at/sponsored by																			
8. Author(s)/Editor(s) Multiple			9. Date February 1997																
10. Author's/Editor's Address Multiple			11. Pages 132																
12. Distribution Statement There are no restrictions on the distribution of this document. Information about the availability of this and other AGARD unclassified publications is given on the back cover.																			
13. Keywords/Descriptors <table border="0"><tr><td>Precision guided munitions</td><td>Terrain</td></tr><tr><td>Conventional warfare</td><td>Military planning</td></tr><tr><td>NATO forces</td><td>Strategic analyses</td></tr><tr><td>Terminal guidance</td><td>Requirements</td></tr><tr><td>Persian Gulf War (1991)</td><td>International cooperation</td></tr><tr><td>Reviews</td><td>Countermeasures</td></tr><tr><td>Global positioning system</td><td>Guidance</td></tr><tr><td>Navigation</td><td></td></tr></table>				Precision guided munitions	Terrain	Conventional warfare	Military planning	NATO forces	Strategic analyses	Terminal guidance	Requirements	Persian Gulf War (1991)	International cooperation	Reviews	Countermeasures	Global positioning system	Guidance	Navigation	
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14. Abstract <p>This report summarises the deliberations of Working Group 02 of the Mission Systems Panel (originally Working Group 13 of the Guidance and Control Panel) of AGARD. The broad objectives of the Working Group were to review present and future terminal guidance technology in relation to NATO military needs.</p> <p>The report includes: a review of existing terminal guidance capabilities and shortcomings; an analysis of NATO military needs; reviews of relevant technology trends, user concerns and future capabilities; and a statement of conclusions and recommendations in respect of the potential to meet NATO needs and for NATO cooperation. Appendices provide basic definitions, plus background outline descriptions of terrain referenced navigation, countermeasures, and relative GPS (Global Positioning System).</p>																			